

ERIOPHYID STUDIES C-1

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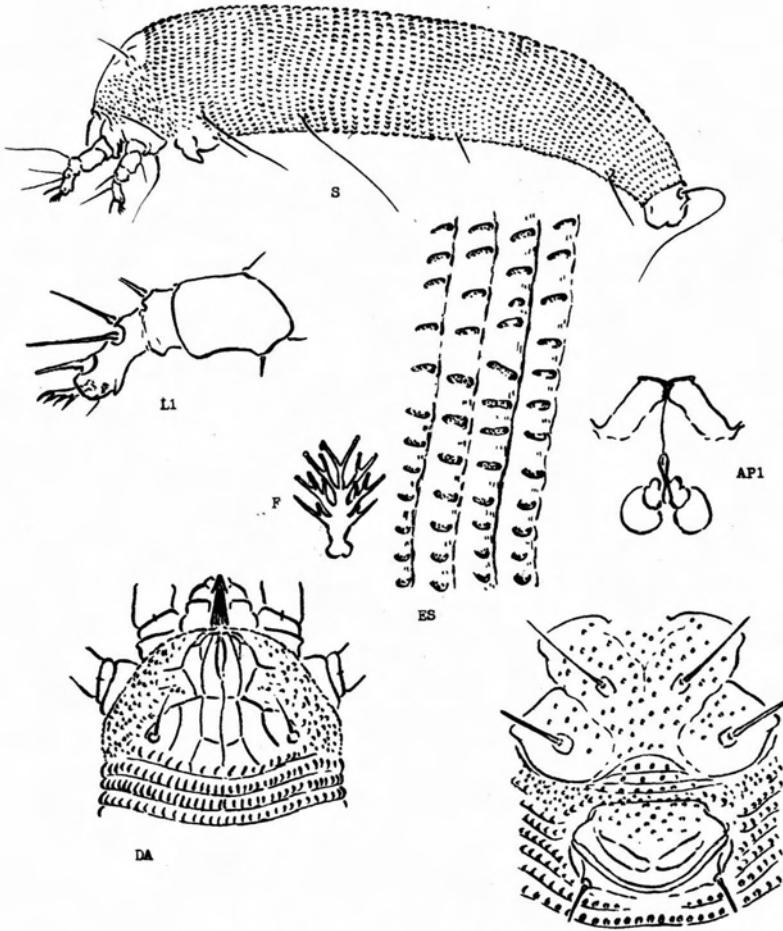


Plate 1 - *Floracarus footei*, new species

Purchased by the Agricultural Research Service
U. S. Department of Agriculture, for official use

Issued April 15, 1969

Floracarus footei, new species

Plate 1

This is the first species assigned to *Floracarus* that is a gall former. The gall-making habit accounts for the fact that this mite is more wormlike than other species now in the genus. The forward direction of the shield setae makes this placement most logical for the present. It is named for Dr. Richard H. Foote of the Entomology Research Division, USDA, whose efforts have made the publication of these papers possible.

Female 190 μ -225 μ long, about 40 μ thick; elongate-wormlike; color in life probably light yellowish-white. Rostrum 18 μ long, directed down; antapical rostral seta minute. Shield 25 μ long, 33 μ wide, subsemicircular in anterior dorsal view, strongly declivitous in lateral view. Shield design of central lines and lateral granulations: median line complete, doubled anteriorly; admedian lines complete, gently curving back to cross line at about 1/2, broken, continuing to 3/4, meeting another cross line and from there diverging to rear margin. Submedian lines broken and angled, curving back from sides of chelicera base to about 1/4, forking at this point, the outer fork disappearing directly into lateral granulations, the inner fork running diagonally toward center and back to 1/2 cross line; this cross line then extending out and diagonally to rear, forking in front of dorsal tubercles and ending on each side of tubercle. Lateral granulations occupying all of shield side. Dorsal tubercles a little ahead of rear shield margin, 20 μ apart; setae 11 μ long, directed up and converging toward front. Foreleg 25 μ long; tibiotarsus 9.5 μ long; claw 6.5 μ long, straight; featherclaw 4-rayed. Featherclaws directed diagonally ahead and inward. Hindleg 23 μ long, tibiotarsus 8 μ long, claw 6 μ long. Coxae generally granular, the forecoxae fused, no sternal line, first setiferous coxal tubercles missing; second tubercles well ahead of third tubercles. Abdominal thanosome with about 61 rings, slight dorsal increase in ring number, completely microtuberculate. Microtubercles elongate above, less so ventrally, not pointed, touching ring margins dorsally, ahead of margins below; lateral seta 18 μ long, on ring 9 behind shield; first ventral seta 46 μ long, on ring 22; second ventral 4.5 μ long, on ring 40. Telosome with about 8 rings, the microtubercles weaker. Telosomal or third ventral seta 13 μ long. Accessory seta minute. Female genitalia 22 μ across, 14 μ long, the coverflap granular at base and with two curving cross lines near rear edge; seta 3 μ long.

Type locality: the Philippines, intercepted in quarantine at Honolulu, Hawaii
Collected: Apr. 6, 1966 by Chun and Graffam and sent me under USDA #66-13435
Host: Nephrolepis sp. Polypodiaceae a fern

Relation to host: the mites make terminal galls on the frond branches

Type slide: so designated, with the above data, sent to the Entomology Research Division, Beltsville, Maryland
six paratype slides; one sent to Beltsville, the rest retained

These specimens bear the USDA #66-13435

Aceria falciformis, new species

Plate 2

Characters on this mite are first, the 4-rayed featherclaws, and second, the lack of definite lines on the shield. Some other mites with 4-rayed featherclaws also have these features, notably *Aceria ligustricola* K. (See Eriophyid Studies XII, Bul. Cal. Dept. Agr. 1952, 32(3):213). But this privet mite, *ligustricola*, has a broader lateral band of shield granules than the new species. A more characteristic feature of the new species is a strong arc, concave anteriorly, across the internal female genitalia from the lateral arms of the anterior apodeme, and crossing centrally at the spermathecal aperture.

Female 125 μ -160 μ long, 32 μ -36 μ thick, wormlike in shape; color in life light yellowish-white. Rostrum 22 μ long, extending forward and downcurved, tending to taper; antapical seta 5 μ long. Shield 23 μ long, 29 μ wide, semicircular in anterior outline. Shield lines faint or obsolete; an indication of admedian lines at rear shield margin which connect across center by a double arch; shield laterally with a band of coarse granules above coxae. Dorsal tubercles 12 μ apart; dorsal setae 12 μ long, diverging to rear. Forelegs 24 μ -27 μ long; tibia 5 μ long, with 6 μ seta from about 1/2; tarsus 5.5 μ long; claw 6 μ long; featherclaw 4-rayed. Hindleg 21 μ -23 μ long, tibia 4 μ long, tarsus 5.5 μ long, claw 6 μ long. Coxae ornamented with sparse short lines and granules; sternal line of moderate length; first setiferous tubercles slightly farther apart than second and a little ahead of the anterior coxal approximation; second coxal tubercles ahead of line across third tubercles. Abdominal thanosome with about 42 rings, completely microtuberculate, these microtubercles tending to be coarse, subquadangular, rounded apically, a little ahead of rear ring margins. Lateral seta 3 μ long, on ring 7; first ventral seta 39 μ long, on ring 17; second ventral 11 μ long, on ring 28. Telosome with 5 rings, the microtubercles smaller, more linear from ring margins, fainter above anteriorly; seta 15 μ long. Accessory seta 4.5 μ long. Female genitalia 11 μ long, 16 μ wide; cover flap with 10-12 longitudinal ribs; genital seta 14 μ long. Internal genital structures with strong cross arc from lateral arms of anterior apodeme, meeting centrally at spermathecal aperture.

Type locality: Mt. Wilson, New South Wales

Collected : Feb. 18, 1968, by Mrs. O. M. Williams and sent me by F. A. Gibson, Entomologist, Department of Agriculture

Host: *Acacia falciformis* DC. Leguminosae

Relation to host: the mites cause flower deformation

Type material: a type slide, with the above data, retained by the author

A paratype slide with this data sent to F. A. Gibson

A second paratype slide with this data sent to the

Entomology Research Division, Beltsville, Maryland

Three additional slides with the following data -

Mittagong, N. S. W.

collected April 24, 1968, by C. E. Chadwick

The host is as above

These are paratypes and one is sent to Beltsville, one to

F. A. Gibson, and one retained

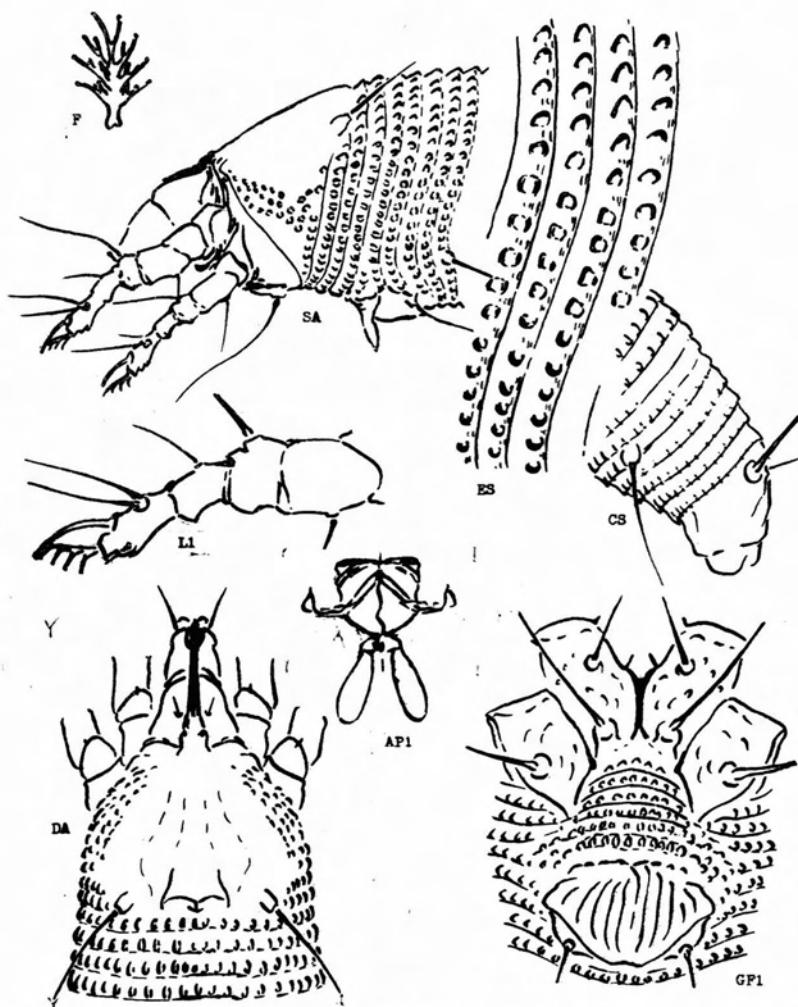


Plate 2 - *Aceria falsiformis*, new species

Aceria rossettonis, new species

Plate 3

The chief features of this mite are the shield lines. The first submedian lines remain subparallel to the admedians and end between the admedians and the dorsal tubercles. In reviewing other Acerias, most of which also possess a 5-rayed featherclaw, there is a series of species with substantially this submedian character. But there are differences of detail in every case. For example, *pipturi* K. (B-17, p. 15), has the coxae with irregular lines and the first coxal tubercles considerably behind the anterior coxal approximation. On *rossettonis* the coxae are granular on the surface and the first setiferous coxal tubercles are slightly ahead of the anterior coxal approximation. A number of Acerias on Composites also have this submedian line feature, but differences in detail are demonstrable. I am pleased to name the mite for Carlos Jorge Rossetto, Eng. Agr. Instituto Agronomico, who collected it.

Female 150 μ -185 μ long, 40 μ -50 μ thick; wormlike in shape; color in life light yellowish-white. Rostrum 22 μ long, tapering to slender apex, projecting forward and down; antapical seta 4 μ long. Shield 29 μ long, 30 μ wide, subsemicircular in anterior outline, slightly acuminate. Shield design of lines and granules: median line present on rear 1/3; submedian lines complete, subparallel, close for first 2/3, farther apart along side of median; first submedians subparallel to admedians, undulating, somewhat broken centrally, ending between base of dorsal tubercles and admedian lines a little ahead of rear margin. Second and third submedian lines close to first but ending or becoming faint after anterior 1/4. Sides of shield above coxae with lines of granules and about 5 partial rings. Dorsal tubercles 17 μ apart, directing the setae divergently to rear: setae 24 μ -29 μ long. Foreleg 26 μ long; tibia 6 μ long, with 5 seta from basal 1/3; tarsus 6 μ long; claw 6 μ long, downcurved, slightly knobbed apically; featherclaw usually 5-rayed, sometimes unevenly 6-rayed. Hindleg 24 μ long, tibia 5 μ long, tarsus 6 μ long, claw 9 μ long. Coxae ornamented with granules, the sternal line short. First setiferous coxal tubercles slightly farther apart than second and a little ahead of anterior coxal approximation; second setiferous tubercles well ahead of line across third tubercles. Abdominal thanosome with about 58 rings, completely microtuberculate, the microtubercles slightly acuminate, oval or elliptical, more or less set ahead of rear ring margins. Lateral seta on about ring 5, 13 μ long; first ventral seta 4 μ long, on ring 17; second ventral 11 μ long, on ring 34. Abdominal telosome with 5 rings, the microtubercles finer and elongate from rear ring margins; telosomal or third ventral seta 17 μ long. Accessory seta 3 μ long. Female genitalia 12 μ long, 18 μ wide, the coverflap with 8-10 longitudinal ribs; seta 6 μ long.

Type locality: Campinas, State of Sao Paulo, Brazil

Collected: December 13, 1967 by Carlos Jorge Rossetto

Host: Anacardium occidentale L. (Anacardiaceae) cashew

Relation to host: the mites are budmites and attack the flowers lowering nut production.

Type material: a type slide, with the above data, retained by the author
One paratype slide sent to C. J. Rossetto
One paratype slide sent to the Entomology Research Division,
Beltsville, Maryland
A third paratype slide and mites in liquid remaining with
the author.

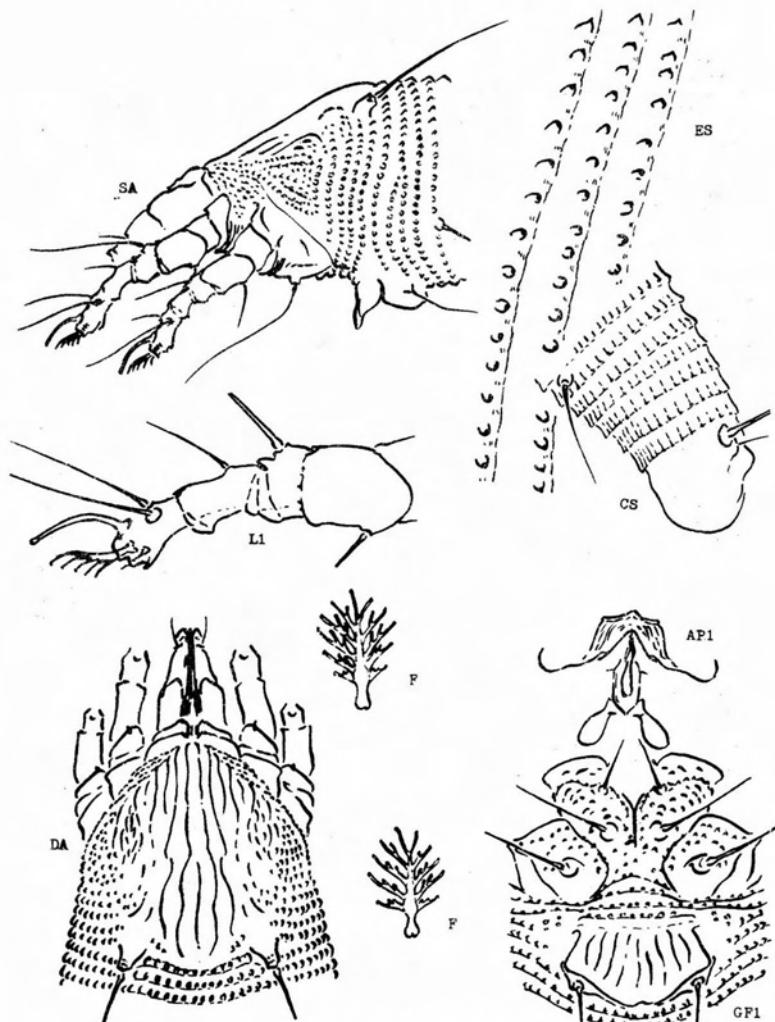


Plate 3 - *Aceria rossettonis*, new species

Aceria bakkeri, new species

Plate 4

With its 7-rayed featherclaw this species is very close to *Aceria tulipae* (K.) but differs by having the shield pattern of lines of granules and having the microtubercles on the rings rounded instead of pointed. The host in this case is rice but Dr. Bakker, who has reared the species on rice, also found it on an unidentified grass. *Tulipae* will live on various grasses and evidently *bakkeri* has similar abilities.

Female 170-185 μ long, 35 μ thick; elongate-wormlike; color in life probably light yellowish-white. Rostrum 20 μ long, curved down; antapical rostral seta 7 μ long. Shield 35 μ across, 31 μ long, subsemicircular in anterior outline, the rear margin rather strongly convex between the dorsal tubercles. A slight anterior projection over the chelicera base. Shield pattern of lines of granules, interspersed with granulations and short dashes: median line present on rear 2/5; admedians complete from just above chelicera base, subparallel, from about 1/2, gently curving outward to break at 3/5, then slightly sinuate to rear margin curving inward at margin. First and second submedians close to admedian, subparallel, extending back and running together at just before 1/2, the line forking again in front of dorsal tubercle, the inner branch weak and broken, the outer stronger and bending abruptly outward, ending lateral to tubercle. A lateral line above coxae enclosing a band of granulations above coxae; about three partial microtuberculated rings below dorsal tubercles. Dorsal tubercles 17 μ apart; dorsal setae 23 μ long, diverging to rear. Foreleg 27 μ long; tibia 5 μ long with 10 μ seta from about 2/3; tarsus 6 μ long; claw 10.5 μ long; featherclaw 7-rayed. Hindleg 25 μ long, tibia 4.5 μ long, tarsus 5.5 μ long, claw 10 μ long. Coxae rather elongate, with lines of dashes and granulations; first setiferous coxal tubercles farther apart than second tubercles and slightly behind anterior coxal approximation; second tubercles slightly farther to rear than third. Abdomen with about 59 rings on the thanosome. Microtubercles rounded off, elongate dorsally especially anteriorly, becoming shorter laterally and ventrally, usually reaching ring margins. Lateral seta on ring 8 behind shield, 27 μ long; first ventral seta 51 μ long, on ring 22; second ventral 11 μ long, on ring 36. Telosome with five rings, the microtubercles very fine above, stronger and elongate ventrally; telosomal seta 11 μ long. Accessory seta 3 μ long. Female genitalia 17 μ wide, 12 μ long; cover flap with about 6 longitudinal ribs; seta 12 μ long.

Type locality: Kisumu, Kenya

Collected: April 7, 1968 by Dr. W. Bakker of the National Agricultural Laboratories

Host: *Oryza sativa* L. Graminae rice

Relation to host: unstated, but probably living in the leaf sheaths

Type material: a type slide with the above data retained by the author

A paratype slide sent to the collector

A paratype slide sent to the Entomology Research Division

Beltsville, Maryland

Two additional paratype slides retained by the author

Fockeu's species, *brevitarsus*, which makes an erineum on the underside of alder leaves, was originally named under *Phytoptus*. Nalepa later carried it in *Eriophyes*. I have recently had the opportunity to examine this species from Michigan and from Europe and it proves to be a species of *Acalitus*. *Brevitarsus* has the definitive characters of *Acalitus*, the principal ones being the absence of the forefemoral seta and the foretibial seta.

Acalitus brevitarsus makes *Erineum alneum* Pers. on *Alnus glutinosa* Gaert. in Europe. In Michigan it attacks *Alnus rugosa* (DuBois) making an orange erineum.

The genus *Acalitus* is proving to be widespread, and in addition to the already named species there are unnamed ones known from Central America and from south of the equator. I am indebted to Prof. C. C. Hall of the University of Texas for the Michigan material.

References: *brevitarsus* Fockeu - Rev. biol. Nord France 3:3, 1890

Nalepa - Das Tierreich 4:8, 1898

Acalitus K. - Eriophyid Studies B-14, p. 2, July 26, 1965
genotype ledi K.

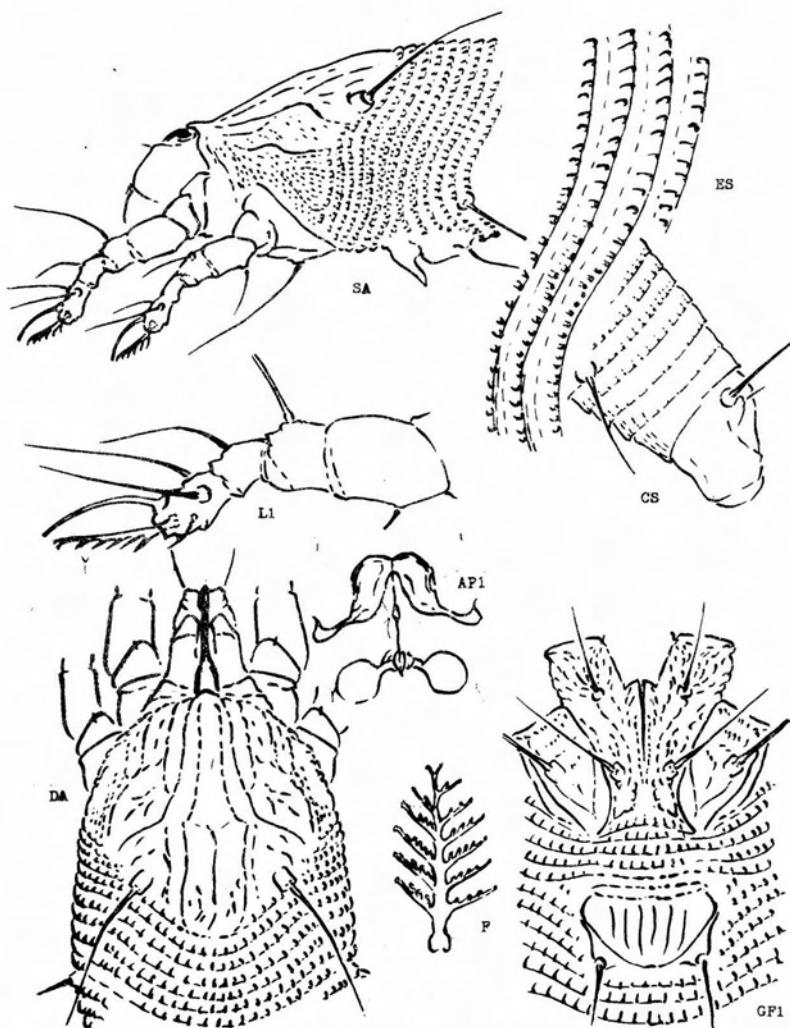


Plate 4 - *Aceria bakkeri*, new species

Tegolophus perseaflorae, new species
Plate 5

This species is assigned to Tegolophus because of the middorsal longitudinal ridge on the abdomen, plus the dorsal tubercles set on the rear shield margin. This ridge has the peculiarity of becoming evident only after 8-10 rings back of the shield, but remaining strong almost to the telosome. The dorsal setae tend to project up and laterally and to be recurved apically. The body rings on perseaflorae are not noticeably separated laterally into tergites and sternites as on most species referred to the genus.

Female 155 μ -170 μ long, about 37 μ thick; elongate-fusiform in general shape, color probably light yellowish-white in life. Rostrum 20 μ long, curved down; antapical rostral seta 5 μ long. Shield 30 μ wide, 34 μ long, somewhat acuminate anteriorly, the lobe over rostrum base small. Shield design not clear, consisting of lines of granules: median line present on rear half; admedian lines from anterior lobe base, sinuate, curving centrad to middle of shield and meeting a short granular line connecting with median, recurving gently to near rear margin where admedian fork, inner branch reaching median on rear margin, the other branch ending at rear margin near dorsal tubercle. Submedian lines extending back about half way from lateral anterior margin. Shield laterally with confused granules, some indicating lines, about four partial microtuberculous rings below dorsal tubercles. Dorsal tubercles 19 μ apart; dorsal setae 28 μ long, projecting up and laterally. Foreleg 24 μ long; tibia 5 μ long, with 3 μ seta from basal 1/5; tarsus 4.5 μ long; claw 5.5 μ long; featherclaw 5-rayed. Hindleg 21 μ long, tibia 4 μ long, tarsus 4.5 μ long, claw 5.5 μ long. Coxae more or less granular, the anterior coxae rather narrowly meeting centrally, the sternal line short but thick. First setiferous coxal tubercles ahead of second and slightly ahead of anterior coxal approximation; second tubercles well ahead of third and not far inside a line drawn between first and third tubercles. Abdominal thanosome with about 55-60 rings, these rings slightly more numerous ventrally. Dorsally the thanosome with a middorsal ridge, faint anteriorly, but beginning above lateral seta and fading to telosome, the ridge marked in part by more prominent granulations or microtubercles. Microtubercles somewhat elongate, projecting slightly, not acuminate, tending to be on ring margins dorsally and laterally, but drawn ahead slightly ventrally. Lateral seta 18 μ long on about ring 5-7 behind shield; first ventral seta 38 μ long, on ring 20; second ventral seta 31 μ long, on ring 36. Telosome with 5-6 rings, the granules fine; telosomal or third ventral seta 11 μ long. Accessory seta 3 μ long. Female genitalia 19 μ wide, 12 μ long; cover flap with about 18 close-set longitudinal ribs (occasional variations); genital seta 13 μ long.

Type locality: Recife, Pernambuco, Brazil

Collected: 1968, by G. P. Arruda and sent me by Dr. C. H. W. Flechtmann
under his number 292

Host: Persea gratissima Gaertn. (Lauraceae) avocado

Relation to host: the mites cause flower damage and decrease in fruit production

Type material: a type slide with the above data retained by the author
a paratype slide sent to the Entomology Research Division,
Beltsville, Maryland
a paratype slide sent to the collector, C. H. W. Flechtmann
four paratype slides retained by the author

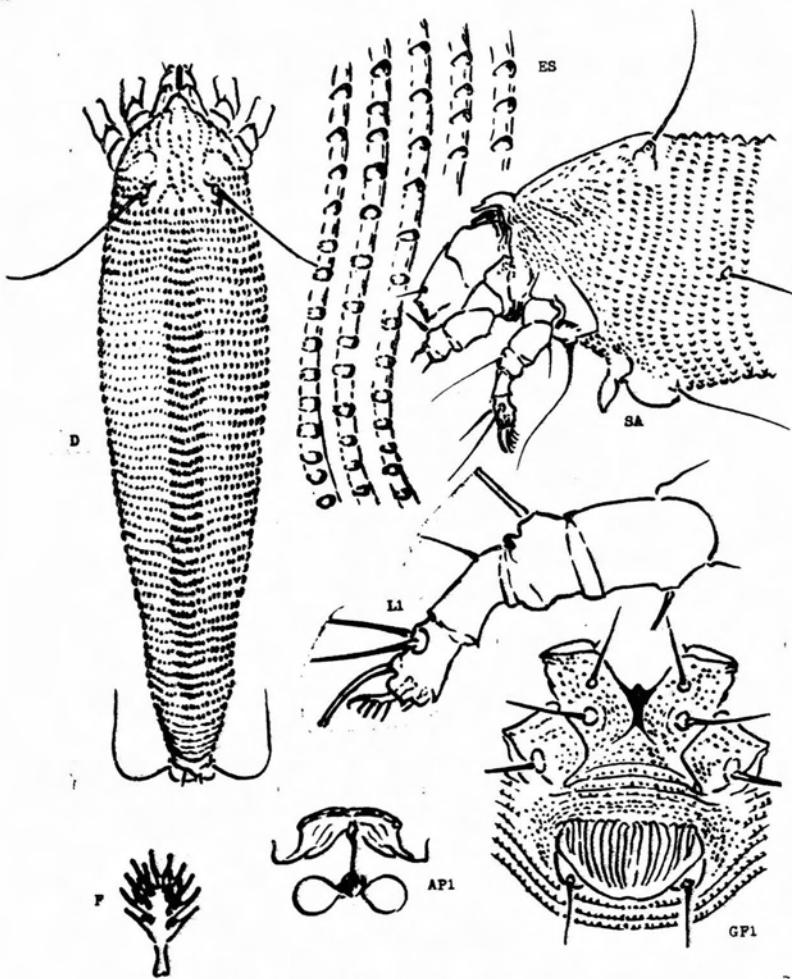


Plate 5 - *Tegolophus perseaeformae*, new species

Tegolophus brasiliensis, new species

Plate 6

This species seems to be closest to *Tegolophus pfaffiae* K., also from Brazil, but that species differs from *brasiliensis* by having heavier microtubercles and 5-rayed featherclaws. The anterior shield lobes in lateral view are similar.

Length of female approximately 152 μ ; width 45 μ ; thickness 42 μ ; fusiform; color in life probably light yellowish-white. Rostrum 23 μ long, projecting down; antapical seta 7 μ long. Shield about 35 μ long, 40 μ wide, subtriangular in shape from above; anterior shield lobe acute from above, downcurved in side view, with pair of small spines projecting forward from underside. Median shield line obscure or absent; medians complete; curving back and outward from narrow anterior lobe (the line continuing to curve to lateral margin at 1/3) angled outward at just before 1/3 and extending sinuate to rear margin, a cross line at 1/3 and a large V-shaped mark in center ahead of rear shield margin. Shield line of rear margin convex between dorsal tubercles. A curving lateral line arching up at about 1/2 and recurving down below dorsal tubercles. Two lateral lines, the upper weak below the arched line, the lower along the side above coxae and with some granulations between it and coxae. Dorsal tubercles on rear side of central rear-curved shield line, projecting, 32 μ apart; dorsal setae 12 μ long. Forelegs 32 μ long; tibia 8 μ long, with 6.5 μ seta from 1/3; tarsus 7 μ long; claw 8 μ long; featherclaw 7-rayed. Hindleg 30 μ long; tibia 5 μ long; tarsus 6 μ long; claw 8 μ long. Coxae with slight markings; first setiferous coxal tubercles a little farther apart than second tubercles and a little ahead of anterior coxal approximation; second coxal tubercles ahead of line across third tubercles. Thanosome with about 26 tergites and 47 sternites, microtuberculate ventrally and up to at least the top of lateral ridges, the microtubercles somewhat fainter and elongate on tergites; these microtubercles projecting from ring margins and more or less pointed. Lateral seta 9 μ long, on sternite 6 behind shield; first ventral seta about 30 μ long, on sternite 18; second ventral 14 μ long, on sternite 32. Telosome with 4 rings and fine microtuberculation on ring margins; seta 21 μ long. Accessory seta 5 μ long. Female genitalia 21 μ wide, 15 μ long, with about 10 longitudinal ribs on cover-flap; seta 16 μ long.

Male about 132 μ long.

Type locality: Matao, S. P., Brazil

Collected: June 1968, by R. N. Williams, and sent me by Prof. Carlos H. W. Flechtmann

Host: *Desmodium* sp. (Leguminosae)

Relation to host: these are probably rust mites

Type material: a type slide with the above data retained by the author, a paratype slide sent to the Entomology Research Division, Beltsville, Maryland

a paratype slide sent to C. H. W. Flechtmann
six paratype slides retained by the author

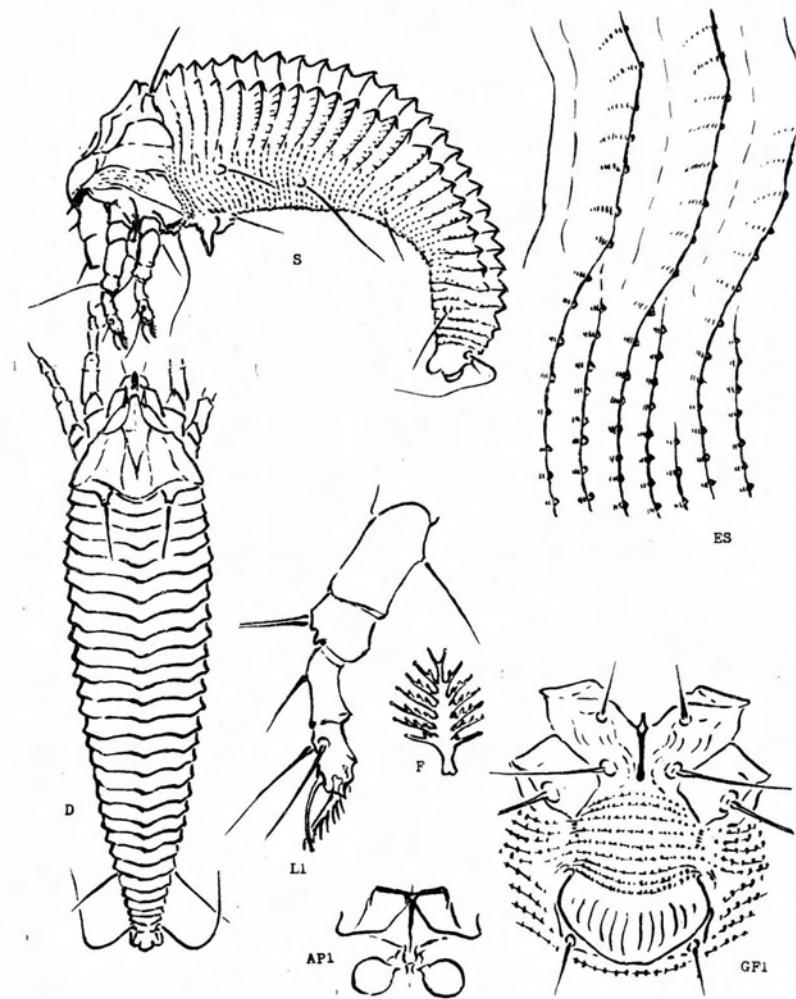


Plate 6 - *Tegolophus braziliensis*, new species

Epitrimerus carmonae, new species

Plate 7

The emargination on the anterior shield lobe removes this species from other known forms. The shield pattern is also distinctive. I am pleased to name it for the collector, Maria Manuela Carmona, of the Estacao Agronomico Nacional, Portugal.

Female 170 μ -180 μ long, 65 μ -80 μ wide, 50 μ -60 μ thick; body fusiform; widest across shield; color in life orange, with wax stripes. Rostrum 38 μ long, projecting down; antapical seta 16 μ long. Shield triangular, 50 μ -55 μ long, 68 μ -80 μ wide; anterior lobe over rostrum rather broad, emarginate centrally anteriorly. Shield pattern of strong lines centrally: median line present on rear third, within 6-sided elongate cell formed by admedians; admedians unclear on anterior lobe, forming a cell from base of lobe to about 2/3 which converges centrad to meet cell on rear 1/3; submedians present only on anterior lobe, one forming the upper interior section of lobe, the second within that. Lateral shield lines extending from admedians at just before 1/2 and curving forward and out toward margin; a second lateral cross line at about 2/3 across in front of dorsal tubercles and running into lateral cell ahead of and lateral to dorsal tubercle; third lateral line from admedians short, running diagonally back from rear margin between dorsal tubercles. Shield with fainter lateral markings and a prominent lateral lobe on each side with rear angle forming widest part of body. Dorsal tubercles 28 μ apart, produced, near rear margin, projecting the short setae up and centrad; dorsal setae 10 μ long. Legs slender and long. Foreleg 40 μ long; tibia 10 μ long, with 8 μ seta from outer 4/5; tarsus 6 μ long; claw 6.5 μ long, curved and knobbed; featherclaw 4-rayed. Hindleg 37 μ long, tibia 7 μ long, tarsus 8 μ long, claw 7 μ long. Coxae ornamented with short curved lines; anterior coxae touching for moderate distance, sternal line weak; first setiferous coxal tubercles farther apart than second and slightly ahead of anterior coxal approximation; second tubercles little ahead of line across third tubercles. Abdominal thorosome with about 22 tergites and 55 sternites. Ventral microtubercles usually faint, elongate, stronger on middorsal ridge. Ventral microtubercles fine, unclear immediately below tergites, ahead of sternal margins. Abdominal tergites forming a central longitudinal ridge, fading to rear, with stronger microtubercles. Lateral sets 25 μ long, on about sternite 4; first ventral seta 36 μ long, on sternite 17; second ventral 22 μ long, on sternite 36. Telosome with about 6 rings, the microtubercles finer and closer, elongate from margins; telosomal or third ventral seta 6 μ long. Accessory seta 6 μ long. Female genitalia 19 μ long, 23 μ wide; cover flap with 16-18 longitudinal ribs; seta 11 μ long.

Type locality: Oeiras, Portugal

Collected: 1968 by Maria Manuela Carmona

Host: Laurus nobilis L. (Lauraceae) Grecian laurel

Relation to host: the mites are undersurface leaf vagrants

Type material: a type slide with the above data retained by the author
a paratype slide sent to the Entomology Research Division,
Beltsville, Maryland
two paratype slides sent to Maria Manuela Carmona
five paratype slides retained by the author

After receiving the above mites I also had some of these same mites sent me from Ayios Nicolaos, Kakapetria, Cyprus, collected Feb. 18, 1968, by Prof. G. P. Georgiou of the University of California at Riverside. These Cyprus mites differ from the Portugal mites by having a slightly different shield line arrangement, and by having the middorsal abdominal ridge shorter and rougher.

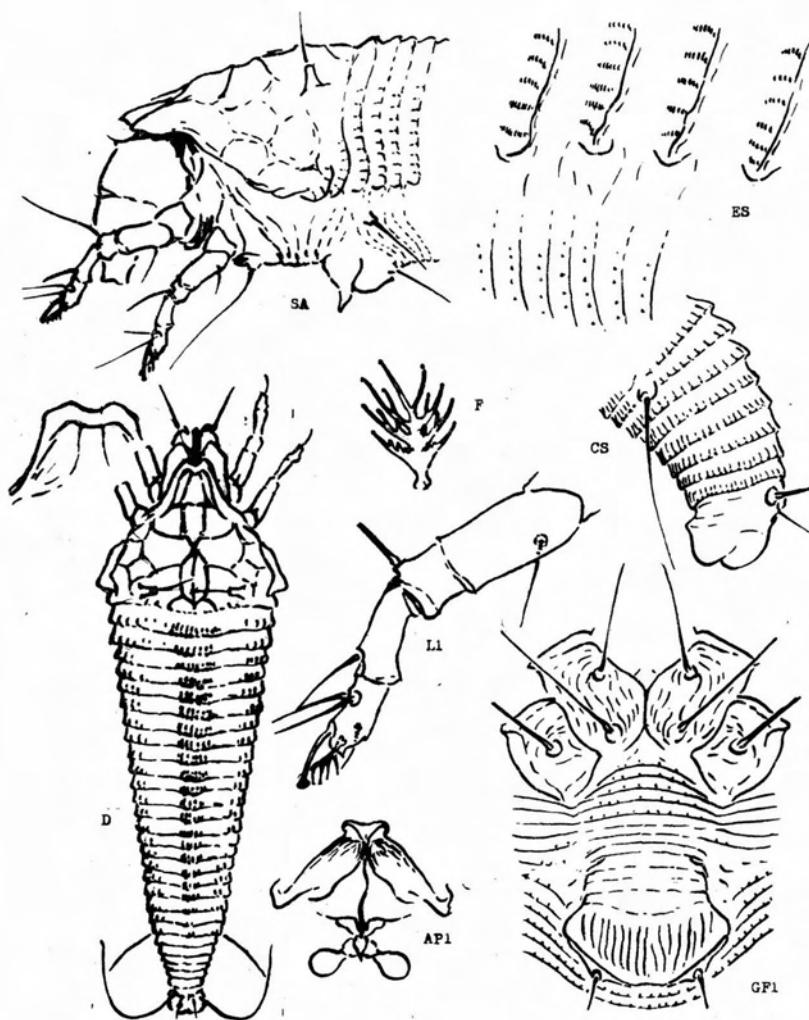


Plate 7 - *Epitrimerus carmonae*, new species

Rhynacus globosus, new species
Plate 8

This is one of the species of this American genus that has longitudinal ribs on the female genital coverflap. Its principal distinguishing character is the shield design, especially the lateral whorls of fine lines and the weak, almost indistinguishable lateral shield cells along lateral margin.

Female 190 μ -210 μ long, 65 μ -75 μ thick; robust fusiform; color probably light purple in life. Rostrum about 4 μ long, curving down; apical seta not seen. Shield about 37 μ -40 μ long, 58 μ wide, with slight extension over rostrum base. Shield with weak indication of median line centrally; admedian lines, complete, thin from anterior lobe to middle of shield, broad behind middle but tapering to rear margin and joined by broad central extension just behind middle of shield. A submedian line from anterior shield edge on each side of anterior lobe, extending back about half way on shield and slightly converging toward admedian, meeting transverse shield line about half way back, or curving toward admedian, with a faint lateral line extending to side from central transverse shield line. Sides of shield with principally a whorl of fine lines and suggestions of lateral cells extending along above coxae. Dorsal tubercles indicated ahead of rear shield margin to side of admedians, but lacking setae. Foreleg about 31 μ long; tibia 5 μ long, lacking seta; tarsus 10 μ long, setae strong; claw straight, 7 μ long, knobbed; featherclaw with about 7 rays on each division. Hindleg 26 μ long; patella not very distinct from femur; tibia 4 μ long, tarsus 8 μ long, claw 6.5 μ long. Coxae ornamented with lines of fine dashes; forecoxae broadly connate centrally along slight median ridge; first setiferous tubercles well behind anterior coxal approximation and a little farther apart than second; second setiferous coxal tubercles somewhat ahead of transverse line across third tubercles. Abdominal thanosome with about 68 fine, narrow rings; these rings not differing appreciably from dorsum to venter. Microtubercles fine, present on ventral side of abdomen, weak or absent laterally. Abdomen with a shallow longitudinal subdorsal furrow on each side fading to rear. Lateral seta absent. First ventral seta 55 μ long, on about ring 31 behind shield; second ventral 52 μ long, on ring 52. Telosome with about 10 rings, completely set with fine microtubercles on rear ring margins; seta 30 μ long. Accessory seta minute. Female genitalia 35 μ long and 31 μ wide; coverflap with scattered granules basally and 22-25 short irregular longitudinal ribs ahead of rear margin. Genital seta 8 μ long.

Type locality: Campinas, Est. S. Paulo, Brazil

Collected: August 16, 1967 by Luiz G. Chiavegatto, Eng. Agr. of the
Instituto Agronomico

Host: Anacardium occidentale L. (Anacardiaceae) cashew nut

Relation to host: the mites are leaf vagrants

Type material: a type slide retained by the author
a paratype slide sent to the Entomology Research Division,
Beltsville, Maryland
three additional paratypes retained by the author
mites in liquid retained by the author

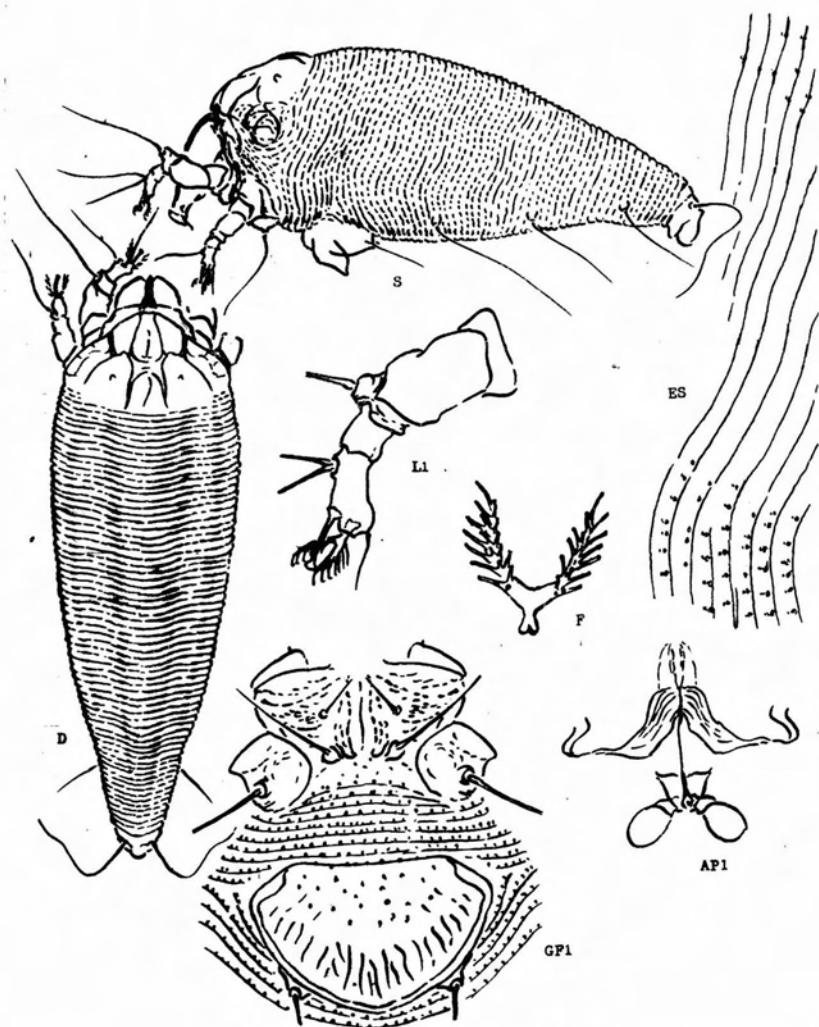


Plate 8 - *Rhynacus globosus*, new species

Diptilomiopus davisii, new species
Plate 9

This species differs from *Diptilomiopus holmesi* (K.) by having less prominent microtubercles on the abdomen, the coverflap lacks the strong basal pattern of fine longitudinal lines, and the shield pattern differs in part by having a longer central cell. I am pleased to name this mite for its collector, J. J. Davis, of the Queensland Department of Primary Industries. For the reference to *holmesi* see Eriophyid Studies BT:8, May 9, 1962.

Female 190 μ -215 μ long, 80 μ -85 μ thick, elongate-fusiform; color in life probably light yellowish-white. Rostrum 35 μ long, projecting down; antapical seta absent. Shield 35 μ long, 51 μ wide; shield design irregular and of strong lines forming cells. Median line present on anterior 1/4, absent centrally, indicated shortly at rear margin at confluence of branches from admedianis. Admedian lines complete, arching out from center above chelicera base, curving back to diagonal line from median at 1/4, curving out and then extending back to fork just ahead of rear margin, forming an elongate hollow central cell in middle of shield with diagonal lines from median line at 1/4 and ahead of rear margin. Sinuate line from median at rear margin, curving forward to outer rear fork of admedian, then continuing laterally in front of vestigial dorsal tubercles and ending at last lateral shield cell. A row of lateral cells along side of shield above coxae. Foreleg 35 μ long; tibia 5 μ long; tarsus 12 μ long, projecting diagonally down; claw 6.5 μ long, straight, knobbed; featherclaw apparently 6-rayed on each side. Hindleg 29 μ long, tibiae 5 μ long, tarsus 8 μ long, claw 6 μ long. Coxae ornamented with faint lines; anterior coxae separated; second setiferous coxal tubercles well ahead of line across third tubercles. Abdominal thanosome with about 43 tergites and 73 sternites. Microtubercles faint or absent on tergites except toward rear; present as fine points ahead of sternal margins anteriorly, gradually elongating and rising on sides toward telosome and attaining sternal margins. Tergites forming a shallow fading longitudinal furrow on each side of dorsum. First lateral seta 17 μ long, on about sternite 3/4; second lateral seta 10 μ long, on about sternite 5/4. Abdominal telosome with 8 rings, the microtubercles fine, somewhat elongate, faint above on first two rings. Accessory seta absent. Female genitalia 22 μ long, 29 μ wide; coverflap with fine basal crosslines and granules; genital seta 9 μ long.

Type locality: Nambour, Queensland

Collected: July 30, 1968 by J. J. Davis

Host: Macadamia tetraphylla X integrifolia seedlings Proteaceae

Relation to host: the mites occur on the underside of the leaves

Type material: a type slide with the above data retained by the author
a paratype slide sent to the Entomology Research Division,
Beltsville, Maryland
a paratype slide sent to J. J. Davis
four paratype slides retained by the author

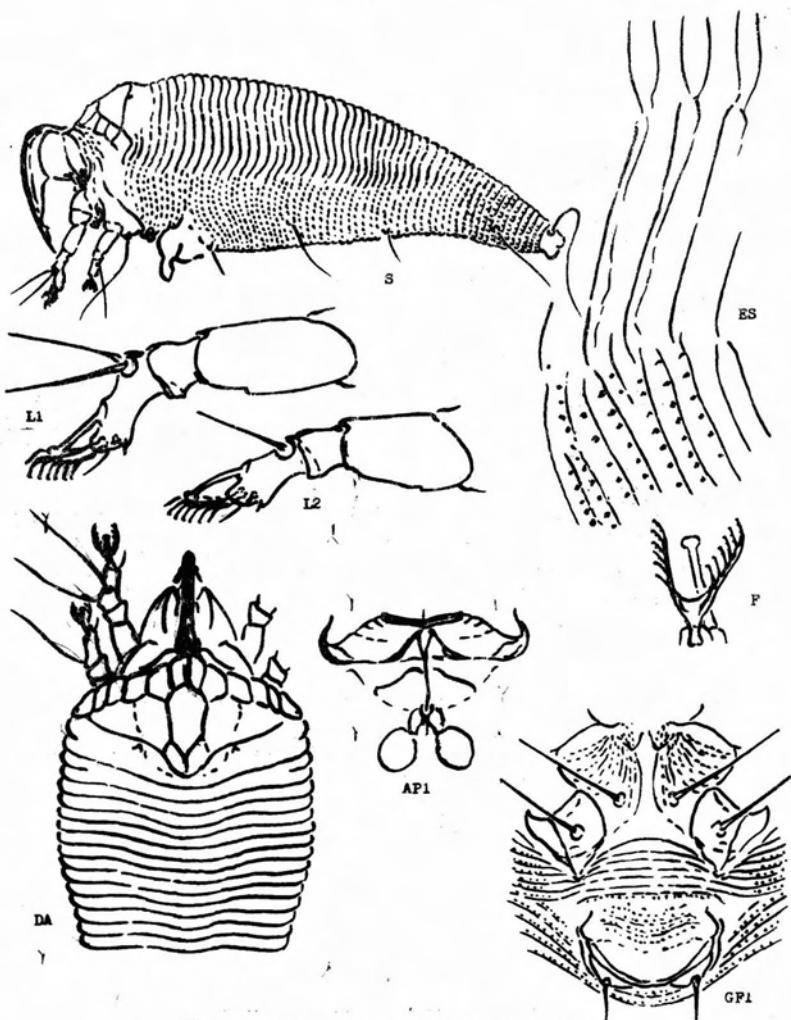


Plate 9 - *Diptilomiopus davisi*, new species

Nalepellia heterophyllae, new species

Plate 10

This is a large robust species belonging to the group with narrower tergites. Previous species found on trees of the genus *Tsuga* are *tsugifoliae* K. which has spines on the rear side of the tibiae, and *tsugae* K. which lacks tibial rear spines but also has small rounded microtubercles on the abdomen. The new species, also found on a species of *Tsuga*, lacks rear tibial spines but has microtubercles formed into spinules about 1 μ long.

Female 300 μ -320 μ long, 105 μ -112 μ thick, fusiform, the color in life light yellowish-white, with slight waxy bloom. Rostrum 72 μ long, curved down; antapical seta 19 μ long. Shield 62 μ long, 92 μ wide, obtusely extending centrad to the small anterior lobe bearing the frontal seta. Shield design irregular in center, some lateral cells above coxae, more or less granular; three or four partial rings below the dorsal tubercles, the latter tending to curve around over the tubercle. Dorsal tubercles about 54 μ apart, set well ahead of rear shield margin; dorsal setae about 100 μ long, projecting forward. Anterior seta 44 μ long. Forelegs 64 μ -68 μ long; tibia 16 μ long, with 18 μ seta from 1/2 and with lateral spur 18 μ long; tarsus 10.5 μ long; claw 16 μ long; featherclaw 9-10 rayed. Hindleg 60 μ -64 μ long, tibia 16 μ long, tarsus 12 μ long, claw 16 μ long. Coxae with some lines around setiferous tubercles the anterior coxae with short central connation and few spinules on centrad side; first setiferous coxal tubercles ahead of second and opposite anterior coxal approximation; second tubercles somewhat ahead of line across third tubercles. Abdominal thanosome with about 67 rather narrow tergites, and about 96 sternites; these bearing microtubercles on edges that are produced into 1 μ long spinules on tergites, smaller on sternites. Spinules tending to be pulled ahead of edges of sternites. Lateral seta 80 μ long, on about sternite 15; first ventral seta 72 μ long, on sternite 35; second ventral 72 μ long, on sternite 57. Telosome with 9 rings, the microtubercles smaller, pointed, closer together and projecting caudad from margins; telosomal or third ventral seta 36 μ long. Accessory seta 9 μ long. Female genitalia 32 μ long, 30 μ wide; no markings on coverlap; seta 44 μ long, arising from large tubercles.

Male 265 μ long.

Type locality: Port Angeles, Washington (Olympic Peninsula)

Collected: August 11, 1967, by the writer

Host: *Tsuga heterophylla* Sarg. (Pinaceae) Western Hemlock

Relation to host: the mites are needle vagrants

Type material: a type slide with the above data retained by the author
a paratype slide sent to the Entomology Research Division,
Beltsville, Maryland
a paratype slide retained by the writer
a vial with leaves and mites in syrup

- AP1 - Internal female genital structures
 - CS - Lateral caudal section of mite
 - D - Dorsal diagram of mite
 - DA - Dorsal diagram of anterior section
 - ES - Lateral skin structures
 - F - Empodium or featherclaw
 - GPI - External female genitalia and coxae from below
 - L1 - Left anterior leg
 - L2 - Left second leg
 - S - Diagram of side of mite
 - SA - Anterior view of side of mite
- Telosome - caudal section of mite including third ventral or telosomal seta
- Thanosome - abdomen from rear shield margin to telosome

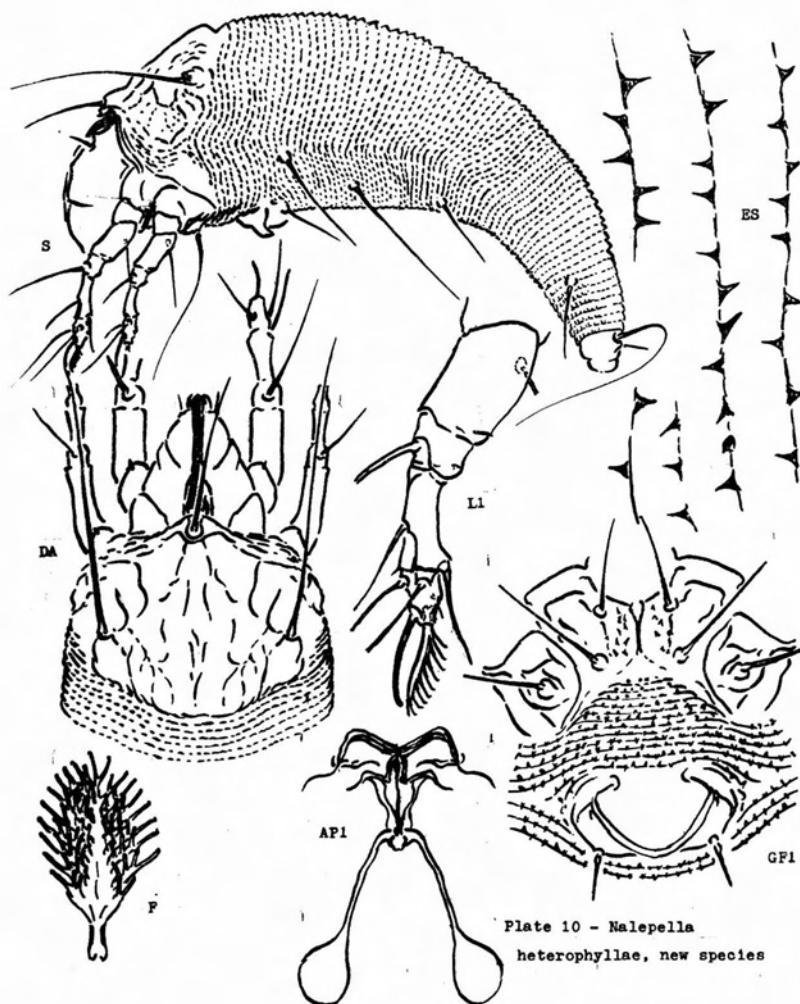


Plate 10 - *Nalepellus*
heterophyllae, new species